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PROCEEDINGS  
OF  
THE ROYAL SOCIETY.

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1839.

No. 41.

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December 5, 1839.

FRANCIS BAILY, Esq., V.P., in the Chair.

John Rogers, Jun., Esq. was balloted for, and duly elected into the Society.

No paper read.

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December 12, 1839.

MAJOR SABINE, R.A., V.P., in the Chair.

George Leith Roupell, M.D., was balloted for, and duly elected into the Society.

“On the Nerves of the Gravid Uterus.” By Robert Lee, M.D., F.R.S.

The author, while dissecting a gravid uterus of seven months, on the 8th of April, 1838, observed the trunk of a large nerve proceeding upwards from the cervix to the body of that organ along with the right uterine vein, and sending off branches to the posterior surface of the uterus; some of which accompanied the vein, and others appeared to be inserted into the peritoneum. A broad band, resembling a plexus of nerves, was seen extending across the posterior surface of the uterus, and covering the nerve about midway from the fundus to the cervix. On the left side, a large plexus of nerves was seen, surrounding the uterine veins at the place where they were about to enter the hypogastric vein. From this plexus three large trunks of nerves were seen accompanying the uterine vein, which increased in size as they ascended to the fundus uteri. From the nerve situated on the posterior surface of the vein, numerous filaments passed off towards the mesial line, as on the right side; some following the smaller veins on the posterior surface of the uterus, and others becoming intimately adherent to the peritoneum. The largest of the nerves which accompanied the uterine vein was traced as high as the part where the Fallopian tube enters the uterus; and there it divided into numerous filaments, which plunged deep into the muscular coat of the uterus along with the vein. A large fasciculated band, like a plexus of nerves, was also seen on the left side

under the peritoneum, crossing the body of the uterus ; and several branches, apparently nervous, proceeding from this band, were distinctly continuous with some of the smaller branches of nerves accompanying the uterine veins. The preparation of the parts was placed in the Museum of St. George's Hospital, on the 1st of October, 1838 ; and several anatomists who examined it were of opinion that they were absorbents accompanying the uterine veins, and tendinous fibres spread across the posterior surface.

Dr. Lee availed himself of another opportunity which presented itself, on the 18th of December of the same year, of examining a gravid uterus in the sixth month of pregnancy, which had the spermatic, hypogastric and sacral nerves remaining connected with it ; and during the last ten months, he has been diligently occupied in tracing the nerves of this uterus. He believes that he has ascertained that the principal trunks of the hypogastric nerves accompany, not the arteries of the uterus, as all anatomists have represented, but the veins ; that these nerves become greatly enlarged during pregnancy ; and that their branches are actually incorporated, or coalesce with the branches of the four great fasciculated bands on the anterior and posterior surface of the uterus, bearing a striking resemblance to ganglionic plexuses of nerves, and sending numerous branches to the muscular coat of the uterus.

The author gives the following description of the nerves of the gravid uterus in the sixth month, and of these fasciculated bands as displayed in the dissection.

Behind the uterus, the aortic plexus divides into two portions, to form the right and left hypogastric plexuses. These plexuses, after an intimate union with the nerves accompanying the ureters, descend to the neck of the uterus, upper part of the vagina, and contiguous parts of the bladder and rectum, where they are joined by branches from the third and fourth sacral nerves. The left hypogastric plexus, about two inches below the aortic plexus, sends off a large branch, which passes on the inside of the ureter to the superior uterine vein, where it is about to terminate in the hypogastric vein. Here the nerve suddenly expands, becomes broad and thin, and passes into a great plexus of nerves, which completely encircles the vein. This plexus, surrounding the uterine vein, is joined below by two large branches, which proceed from the hypogastric plexus nearer the vagina, and lower down, and from which branches pass on the outside of the ureter. From the upper part of this plexus, surrounding the uterine vein near its termination, three large trunks of nerves proceed upwards with the vein to the superior part of the uterus, and enlarge as they ascend. The posterior branch of these hypogastric nerves sends off in its course smaller branches, which accompany the ramifications of the uterine vein on the posterior surface of the uterus. Passing upwards beyond the junction of the spermatic with the uterine vein, and running between the peritoneum and the left posterior fasciculated band, it spreads out into a web of thin broad branches and slender nervous filaments, some of which are inserted into the peritoneum, and others follow the vein to the

fundus uteri, which they completely surround as the vein passes down into the muscular coat of the uterus.

Some of the branches of this nerve, near the fundus uteri, are distributed to the muscular coat, but these are small and few in number.

The middle and anterior branches of the hypogastric nerves adhere closely to the uterine vein as they ascend, and form around it several plexuses, which completely invest the vessel. From these plexuses branches are sent off to the anterior surface of the uterus, some of which, in an arborescent form, follow the trunk and branches of the uterine artery. These two hypogastric nerves ascend, and closely unite with the left posterior fasciculated band.

On the left side of the uterus this band arises near the mesial line, on the back of the uterus, midway between the fundus and cervix, from a mass of fibres, which adhere so firmly both to the peritoneum and muscular coat that it is difficult precisely to determine their arrangement. From these fibres the band proceeds across the uterus, in the form of a thin web, to the point where the spermatic vein is leaving the uterus. After closely uniting with the hypogastric nerves, this band proceeds outwards to the round ligament, becoming less firmly adherent to the peritoneum, where it unites with the left anterior band, and spreads out into a great web, under the peritoneum. The left posterior band is loosely attached, through its whole course, to the subjacent muscular coat by soft cellular membrane.

The spermatic nerves on the left side pass down to the ovarium with the spermatic artery, and first give off several branches to the corpus fimbriatum. A few small branches are then sent into the outer end of the ovary. The spermatic nerves afterwards leave the artery, and proceed with the veins to the uterus, where they firmly unite to the outer extremity of the left posterior band; and after the junction of this band with the prolongations of the anterior band under the round ligament, numerous small, delicate filaments, apparently nervous, are sent to the base of the ovarium.

On the right side of the uterus, the author finds that the distribution of the hypogastric and spermatic nerves does not essentially differ from that now described as seen on the left side. The form and situation of the right posterior band is, he states, much more clearly seen than on the left side, and presents the appearance of a white pearly fasciculated membrane about a quarter of an inch in breadth, proceeding from the mesial line at right angles to the hypogastric nerves, across the body of the uterus, to the round ligament, where it unites with the anterior band. Numerous branches, strikingly resembling the branches of nerves, are sent off from the upper and lower edges of this band, and from its posterior surface to the muscular coat of the uterus. An extensive and intimate union at various points is distinctly perceptible between these branches sent off from the band and the branches of the hypogastric nerves. On the anterior and upper part of the neck of the uterus, there is a great mass of reddish-coloured fibres, firmly interlaced together, resembling a ganglion of nerves, into which numerous large branches of the hy-

pogastric nerves on both sides enter, and to which they firmly adhere. From the upper part of this fibrous substance there passes up, over the whole anterior surface of the uterus, a thin band of firm white fasciculated fibres, prolongations of which extend to the round ligaments,—into which, and into the posterior band, they are continued by numerous filaments, like those of nerves. From the posterior surface of this great band, numerous branches, also apparently nervous, can be traced to a considerable depth through the muscular coat of the uterus.

The author concludes his paper with the following remark, and a short historical account of the progress of discovery on the subject of the nerves of the uterus:—

“From the form, colour and general appearance of these fasciculated bands, and the resemblance they bear to ganglionic plexuses of nerves, and from their branches actually coalescing with the hypogastric and spermatic nerves, I was induced to conclude, on first discovering them, that they were nervous plexuses, and constituted the special nervous system of the uterus. The recent examination, however, of the gravid uterus of some of the lower animals, in which I have found a structure similar to those bands in large quantity under the peritoneum, has left me in considerable doubt as to the nature of these bands, and until further investigations have been made, I shall not venture to pronounce a positive opinion respecting them.”

The description of the nerves of the uterus contained in Professor Tiedemann’s splendid work, the author adds, is usually referred to by anatomical writers as the most accurate and complete which has ever been given. Professor Tiedemann has represented the spermatic nerves as being distributed chiefly to the ovarium; and the hypogastric as invariably accompanying the trunk and branches of the uterine arteries, along the sides of the uterus,—dividing into smaller branches, and quickly disappearing in the muscular coat of the uterus. He has made no mention of the large nervous trunks on both sides of the uterus, which accompany the uterine veins; nor has he noticed fasciculated transverse bands on the anterior and posterior surfaces of the uterus, connected with the hypogastric and spermatic nerves.

“Observations made at the Cape of Good Hope, in the year 1838, with Bradley’s Zenith Sector, for the verification of the amplitude of the Abbé de la Caille’s Arc of the Meridian; by order of the Lords Commissioners of the Admiralty.” By Thomas Maclear, Esq., M.A., F.R.S., &c. Communicated by Sir John Barrow, Bart., V.P.R.S., &c.

The author gives an account of the precautions taken in putting together the different parts of the zenith sector, which he received on the 9th of December, 1837, in erecting it in the central room of the Royal Observatory at the Cape of Good Hope, and in afterwards transferring it to the southern station of La Caille, in Cape Town. He then proceeds to describe La Caille’s observatory, and the particular circumstances of its locality, with relation to the object in